Final Summary Report
New Directions: Regional Science Issues

Workshop 2
Communicating Science: Waves of the Future
Info Fair

October 27 - 28, 1999
Waterside Mall
Washington, DC

Prepared for:

Office of Science Policy
Office of Research and Development
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Preface

The U.S. Environmental Protection Agency's (EPA) Office of Research and Development (ORD) is currently pursuing new approaches for using science to address several topics of importance to the Agency. These topics represent new directions for EPA in that they transcend the traditional media- or pollutant-based boundaries and encompass a variety of disciplines and specialities. ORD wishes to link EPA staff interested in these topics with the appropriate science staff in ORD to identify areas for collaboration. To accomplish this goal, ORD's Office of Science Policy is hosting a series of New Directions workshops between March 1999 and Spring 2000. The workshops will provide a forum to present information and discuss current and future issues on new topics of interest. There are four topic series being presented under the auspices of New Directions: Community Assessment, Reinvention, Risk Management, and Regional Science. Each topic series will consist of three or four workshops designed to bring interested staff together to develop a set of action items that will be completed over the course of the series.

The Regional Science workshops are intended to bring together scientists and others from EPA's Regional offices, ORD laboratories and centers, and interested program offices. Public and private stakeholders have assumed greater roles in both regulatory and non-regulatory aspects of environmental protection; EPA's Regions are, in many cases, best placed to interact with these stakeholders. In addition, the Regions are located where sector- and community-based environmental protection -- two key components of EPA's new direction in environmental protection -- is happening or can happen. Actions taken at the Regional level have a major impact on EPA's national policy decisions in these areas.

The ORD/Regional Info Fair, titled "Communicating Science: Waves of the Future," was held at the EPA Washington Information Center in the Waterside Mall building in Washington, DC on October 27 - 28, 1999. The ten Regions were provided the opportunity to participate remotely via teleconference, a computer-based conferencing software system (PlaceWare), and video conferencing (PicTel). Approximately 67 people, representing both ORD and the Regions, participated in the workshop.

STATUS OF THIS REPORT

The objective of this workshop (or workshop series) was to bring together EPA scientists from the Regions, programs, and ORD labs and centers to discuss issues of common interest. The focus of the meeting (or each meeting) was <u>preliminary</u> discussion among scientists and managers from different parts of the Agency, each with their individual and office-specific information and viewpoints.

As a result, it is important to understand that this report summarizes individual and program-specific perspectives. References to <u>pre-existing</u> Agency information and policies should be credited as such, but none of the individual workshop statements or summaries in this report should be credited or cited as Agency information or policies. Rather, this report is developed <u>exclusively</u> for <u>internal</u> EPA use and distribution as a record of the meeting for participants in each meeting, and for EPA's use in planning future meetings and discussion. EPA staff will use information from this report, as appropriate, to design and conduct workshops or other activities for broader discussion both within EPA and with external participation.

Appendix A provides a complete list of participants. David Klauder

of ORD and Jan Baxter of Region 9 facilitated the workshop, which was videotaped for distribution around the country.

The two-day workshop had three objectives: (1) increase awareness of existing new science communication technologies, (2) evaluate the utility and effectiveness of these technologies for transmitting ORD science information, and (3) provide a summary report to assist EPA in selecting the best technologies for communicating science information. To accomplish these objectives, communication technologies were presented to the group; hands-on demonstrations, training, and participant experimentation followed at the Washington, DC site. Participants were asked to complete evaluation forms for each presentation. Participants were given the option of completing paper evaluation forms or completing the evaluation questions online. Participants were asked to rank or complete the following questions:

- How effectively did this technology communicate the science/technical information?

- Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?

- How would this communication technology be best used?

- What are some suggestions on how to make this a more effective science/technology transfer tool?

During the final session of the workshop, discussion focused on common themes that were repeated on the evaluation sheets. Remote and onsite participants were given a choice of topics to discuss. These included:

- The experience of participating via PlaceWare, a computer technology that allows real-time remote viewing of computer-generated presentations

? Communication mechanisms presented at the Info Fair that interested participants the most

? Other communication mechanisms that EPA should be investigating

? The pros and cons of active communication mechanisms (such as listservers) versus passive communication mechanisms (such as web discussions and web searches)

This report summarizes the information that was presented and exchanged during the workshop. The organization of the report follows the agenda of the workshop. The introductory presentation is summarized in Section 1. Section 2 gives a summary of each presentation, followed by a summary of responses on the individual evaluation forms for that presentation. Section 3 summarizes the discussions during the demonstration sessions. Key themes that emerged during wrap-up discussions are highlighted

in Section 4 of this report. Section 5 provides a summary of the individual evaluation forms as a whole and presents in more detail the responses given by participants in the workshop evaluation form. The report concludes with appendices containing a roster of attendees, the final workshop agenda, copies of the evaluation forms, copies of materials distributed to participants, an index of the workshop video tapes, and team members for each project.

1. Introduction

1.1 New Directions Overview (Dorothy Patton - ORD/OSP)

The New Directions initiative was introduced in a presentation by Dorothy Patton, Director of the Office of Science Policy (OSP), within the U.S. Environmental Protection Agency's (EPA) Office of Research and Development (ORD). New Directions workshops are intended to bring EPA scientists, analysts, and managers together to discuss how new approaches to environmental protection are being addressed across the Agency. Workshop sponsors believe that these discussions will produce cross-Agency linkages that will strengthen science at EPA by fostering collaboration and coordination on scientific issues that cross traditional program and media boundaries.

The Regional Science topic areas include workshops on asthma, transfer of science information, non-indigenous species, and Region 5's FIELDS system. The goals of all these workshops include: (1) focusing on new science issues; (2) promoting dialogue among ORD laboratories and research centers, and EPA Regional and program offices; and (3) producing cross-Agency linkages. ORD field offices exist around the country and are available to work with Regional offices.

2. Summary of Technologies and Participant Evaluations

Most of the subject matter for the Info Fair was developed over the summer by teams of ORD and Regional scientists working on pilot science communication projects. The Info Fair then served as a forum to report on the results of these pilot projects. A series of presentations were given that covered many new communication mechanisms. In addition, several of the technologies or communication mechanisms were presented during two demonstration and discussion sessions held each day of the Info Fair. Following the formal demonstrations and discussions, participants had the opportunity to access websites presented earlier, access slides from previous presentations, access CD-ROMs, and complete evaluation forms online.

Over the course of each day, workshop participants were asked to consider the presentations they heard and to complete hard copy or electronic evaluation forms for each presentation. These forms asked: (1) How effectively did this technology communicate the science/technical information? (2) Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information? (3) How would this communication technology be best used? and (4) What are your suggestions for making this a more effective science/technology transfer tool?

In reviewing the evaluation forms, it became clear that some participants did not realize that in the ranking scale of one to five, one meant extremely effective or best-suited and five meant not effective or well-suited. Some participants gave scores of 5 when their written comments indicated a more positive evaluation. In these instances, votes have been changed accordingly (5 to 1, 4 to 2). Secondly, not every participant turned in an evaluation form for every presentation. Also, not every evaluation form turned in was fully completed. Therefore, the total number of votes submitted for each technology differ. Finally, some comments dealt with the technical subject matter or style of the presentation rather than the technology and were therefore not included in the summaries.

This section is organized by technology, according to the order in which they were presented. Each presentation that described the technology is summarized below. Several of the technologies were also displayed during the demonstration and discussion sections; those sessions are summarized in Section 3. The description of each presentation is followed by a summary of the comments given by participants on the evaluation forms for that particular technology. Participants also discussed their responses in a final session, summarized in Section 4. Copies of the completed evaluation forms are given in Appendix C.

2.1 Day 1

2.1.1   Asthma Workshop Review (Sheila Batka — Region 5)

The first of the ORD Regional workshops in the "New Directions" series focused on asthma. This workshop was designed to initiate the development of a network of ORD scientists and Regional project managers working on community asthma problems. The workshop addressed three objectives:

(1) enhancing ORD's understanding of the nature of the ongoing work in the Regions to assess and mitigate community asthma clusters, (2) enabling the Regions and program offices to learn about ongoing research in ORD and across the Federal government which is addressing Regional asthma science issues, and (3) generating "next steps" for how the Regions can utilize the existing data and research products on asthma to further their efforts to address community asthma problems. After each presentation, participants discussed the usefulness of the information presented, identified the most significant gaps in the assessment and mitigation of asthma problems, and identified additional steps that the Regions can take to enhance the effectiveness of their community asthma work.

Since this was the first workshop of the series, there were several lessons learned about the development and evaluation of the workshop that can be applied to future workshops. These lessons fall into the categories of resources, measures of workshop success, results of the pilot program, overall lessons learned, and improvements. The discussion questions at the end of the presentations served two purposes. The questions provided valuable feedback to ORD and also directly involved the target audience in the proceedings. As a result of this first workshop, ORD now has a better of idea of the amount and type of resources to devote to other workshops of comparable size. The asthma sessions required two ORD scientists and support staff to organize the workshop. Speakers required laptop computers with presentation software (PowerPoint) and audio/visual equipment. Various office supplies were necessary for the facilitation of the meeting as well. Outside contractors were used for registration and note-taking. Organizers also learned that pre-determined measures of success are necessary to evaluate the workshop's effectiveness. The ultimate measure of the workshop's success was how well the workshop succeeded in communicating needed information. The discussion during the final plenary session provided a means to assess this. During the final session, the group was asked to answer the following questions: (1) What useful information was learned at the workshop? (2) What information is still needed? and (3) How can this information be applied within the community? In light of the primary measure of success, the workshop accomplished its goal. The discussion revealed that Regional participants had increased their awareness of the topic and ongoing research, and that ORD scientists had gained a better understanding of Regional activities and needs. Participants agreed that continued education and networking through such workshops is desired and needed.

There were several key factors that determined the success of the workshop. Workshop planners found that preplanning is essential for success. Other factors were generated from participant suggestions for improving the use of workshops as a means of communication. For example, Regional staff do not always have enough background information. Providing pre-meeting materials is helpful. Likewise, travel costs proved to be a barrier for many Regional staff. Opportunities for remote participation would alleviate this concern. Many thought that the two and a half-day workshop was too long. Many participants left before the discussion sessions. The Asthma workshop planners also limited the number of speakers from outside EPA to three. Although this limit helped to focus the workshop on asthma efforts within EPA, the outside speakers shared valuable information about asthma research and programs in other agencies and academia.

The experience provided by the Asthma workshop showed that workshops can serve as an effective means of allowing Regions to review information that ORD scientists may take for granted and

as a network in which Regions, program offices, and ORD can share information. Workshops are useful mechanisms for the Regions and ORD to better understand each other's needs.

The question and answer session following this presentation generated several useful suggestions for improving future workshops, including:

- End workshops earlier in the day to encourage participants to stay the whole time.

- Make summary reports of the workshops proceedings available, possibly on the web.

- To decrease costs, planners should try to do as much meeting preparation in-house as possible. These items include photocopying, some logistics, and possibly audio/visual support.

Individual Presentation Evaluation: Asthma Workshop

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	2	3	4	–	–

Average grade: 2.2

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

- Many participants found workshops to be a useful communication technique for bringing together ORD scientists and Regional staff.

- Many believed that the greatest problem presented by this mechanism is that the audience would be limited because of budget restraints on travel.

- One participant noted that one strength of this mechanism is that it provides good, in-depth information transfer.

- Another participant noted that workshop effectiveness is a function of the skill of the presenters, among other factors. This varies widely and is largely beyond the control of the workshop sponsors/planners.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other

Votes	4, 1, 3, 1, 4, 1	1, 1, 1, 2, 3, 3, 1	1, 1, 1, 2, 3, 1	3, 4, 4, 3, 2	Tech transfer (2)
Average	2.3	1.7	1.5	3.2	–

Additional comments or explanations of scores:

• One comment was to promote interactive learning more, saving on travel expense.

4. Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?

• One participant thought this was an excellent example of a communication mechanism. However, it should be stressed that up-front planning is essential.

• Many commented that the slides were difficult to read on videotape.

• One attendee wondered how long the information would still be considered technically current. It is important to note that it takes about six to eight months to get the information out on videotape.

• Much of the benefit of the workshop is in off-time conversations and opportunities for networking.

2.1.2   Asthma Web Page (Lisa Ryan - ORD/OSP)

Recently it has become clear that Regions need a means to stay current with asthma science, particularly by having access to information on current research being done by ORD and outside agencies and institutions. The Asthma Science EPA Intranet Website was developed to help communicate this information within EPA. The website provides general information on asthma and links to sites outside of the Agency that also provide asthma information. The website aims to make accessing information about this complex topic easier for scientists and nonscientists within EPA.

One of the best features of the website is the link to other informative websites dealing with various asthma subtopics. These include databases for ambient air data, sites offering clinical advice on asthma, other health-related links, other useful databases (TOXLINE, PUBMED), and sites addressing environmental agents that impact asthma. Another useful feature is a page providing links to current asthma research projects, both within and outside the Agency. Beyond the Agency, links include the American Lung Association and the National Institutes of Health, among others. Another feature that will be particularly useful to the Regions is a list of EPA contacts for more information on specific asthma-related topics. Likewise, the discussion forum provides a means for Regions to contact ORD scientists with questions and suggestions on asthma research, as well as problems encountered in the Regions. Because the website is only available on the EPA Intranet, all EPA personnel have access to it, but the general public does not. This allows for open discussion of asthma research and outreach, and minimizes the risk of public controversy. The asthma Intranet website is a very effective tool for

communicating asthma science and allows for better collaboration between ORD scientists and the Regions. The website format can also be used for any other complex topic addressed by the Agency.

After a quick tour of the website and its features, Info Fair participants asked questions regarding the equipment, software, and training necessary to maintain the site. Though this site was originally developed by a contractor, Ms. Ryan received the necessary training to maintain the site herself. The site uses Lotus Notes. Because of the time demands required to maintain such a site, it was suggested that one person be responsible for only one section of the site. The group also discussed the merits and problems inherent in making this site available to the public. The site does serve as a "one-stop" source for general information about asthma. However, many felt that public access to the site would inhibit open communication between ORD and the Regions. One suggestion was to make a similar site available to the public on the World Wide Web. This site would exclude areas in which EPA staff discuss policy and other sensitive issues.

Individual Presentation Evaluation: Asthma Web Page

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	9	1	–	–	–

Average grade: 1.1

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

- One participant wondered whether a search of EPA's Intranet for asthma would produce this site as the number one hit. If not, there is a problem with the search engine.

- Many stressed the importance of regularly updating the website.

- While the web is an excellent medium to convey information, it is dependent on the quality of the webpage.

- The strengths of using a webpage are that it is inexpensive, universally available, and it can be exhaustive. The main weakness is that it is limited to those with reasonably good computer skills.

- This type of site can serve as an excellent repository of focused information. It is also very cost-effective. One participant wanted it used more for other subtopics.

- Weaknesses are that the developer must commit to maintaining information.

- The use of websites was a good topic to demonstrate remotely because the Regions could experiment with the web page while the presentation was going on.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	3, 1, 2, 2, 1, 4	3, 1, 5, 2, 4	3, 1, 5, 3, 4	4, 1, 5, 2, 4	Information dissemination (1, 1, 1) EPA and public users (1) Science info (1) Access to information (1) Office Use (1)
Average	2.2	3	3.2	3.2	–

Additional comments or explanations of scores:

- Many expressed interest in the training potential of a website like this one.

- This is the general filing cabinet where anyone can go for background, current knowledge, and information on where the science is going.

4. *Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?*

- This is a great tool and the Agency should focus on promoting this and similar sites, as well as providing any training staff want.

- It is important to update the material.

- This approach should be spread to other topics.

- It would be useful to have a directory or resource document or website that lists all ORD webpages and listservers associated with disease-specific endpoints or pollutant-specific sites for easy access.

2.1.3   Volatile Organic Compound Instruction Tapes: VOC Recovery Seminar Proceedings Summary Report and Videotape (Scott Hedges - ORD/NRMRL)

The National Risk Management Research Laboratory (NRMRL) held a VOC recovery seminar in September 1998 in Cincinnati, Ohio, which was videotaped. The seminar consisted of plenary presentations that were followed by breakout discussion sessions. The breakout sessions were intended to engage attendees in discussion of the obstacles to wider use of VOC recovery technologies. Following this seminar, the Technology Transfer Division of NRMRL, along with a contractor,

completed a summary report and a set of videotapes documenting the presentations made at the seminar. The videotape package includes seven video cassettes, a table of contents with a tape count on each tape box, and a notebook of presentation overheads. The summary report and videotape set were designed to communicate state-of-the-science VOC recovery technology information to other EPA ORD laboratories, program offices, Regions, State and local environmental agencies, affected industries, engineering and environmental consulting firms, and academia. The seminar and videotapes focused on key issues, including the status of major Federal research programs, the latest technology innovations, performance and cost effectiveness of these techniques, and the applicability of recovery techniques to air, water, and
solid waste. This transfer of science information via seminar and video package directly contributes to the "Sound Science" Government Performance and Results Act (GPRA) objective.

Preparation for the seminar included identifying the target audience and engaging co-sponsors outside of EPA, as well as enlisting key experts in VOC recovery to give presentations. These key experts also helped market the seminar to the various groups that they represented and provided targeted mailing lists. Marketing the seminar to ensure good turnout involved preparing and distributing flyers and placing announcements on relevant websites, bulletin boards, and in trade journals. The project required one full-time person for six months to prepare and conduct the seminar, prepare presentations and the summary report, and edit the videotape. Expertise was drawn from the Technology Transfer, Sustainable Technology, and Air divisions of NRMRL, as well as EPA's Office of Air Quality Planning and Standards, to prepare and conduct the seminar, review the summary report, and edit the videotape. Additionally, a contractor was used to provide logistical support at the seminar. Contract work included arranging speakers, developing handouts, arranging facilities and equipment, note-taking during the seminar, preparing and summarizing the evaluation forms, preparing marketing materials, and preparing the summary report and videotapes. Project expenses totaled nearly $75,000. Of this, $50,000 went to preparing and conducting the seminar, $10,000 went to preparing the summary report, $11,000 went to editing and finalizing the videotape set and presentation materials, and $3,000 went to travel expenses for the EPA speakers.

Measures of seminar success were identified prior to the seminar. These included: obtaining diverse participation, including members of government, industry, and academia; engaging key experts to provide information on cutting-edge technologies; sparking lively interactions; and providing clear, concise technology transfer via videotape to the widest audience possible. Success was evaluated through responses on evaluation forms, word-of-mouth and email feedback, and review comments about the utility of the videotapes and accompanying materials from Regional representatives (Regions, 4, 5, and 9). These evaluations identified several seminar strengths. Most found the seminar to be useful and informative and a good overview of new technologies. There was good opportunity for participant interaction as well. The evaluations also generated suggestions to improve future seminars, including:

- Larger meeting space

- Wider industry participation

- Additional time for presentations, questions and answers, and breakout discussions

• Spacing breakout sessions throughout the seminar (not only at the end of the second day)

Videotape reviewers were asked to respond to a series of questions addressing the tapes' quality and clarity, the usefulness of the tapes and accompanying materials, and the usefulness of the table of contents and tape counts. While reviewers found the tapes to be good in general, they noted that some slides were difficult to read from the video because of the amount of information on them. Also, it was difficult to hear the questions asked by the audience. Reviewers did like the use of two cameras to cut back and forth between the speakers and the slides. The table of contents and tape counts were useful. The accompanying materials were helpful when the slides were unclear. Reviewers also recommended combining two slides on each page in the notebook to conserve paper and including the tape counts in the notebook. Some suggested including running times as well, because some VCRs do not have counters. Comparisons were made between the seminar and the videotapes. The strengths of the tape format included being able to watch at one's leisure and the ability to reach a much wider audience. However, the tapes do not allow for questions and answers. Overall, the tapes were seen as an effective means to disseminate the information to a wider audience. The summary report will be available through online ordering at the end of this year. The document number is EPA-625/R-99/005 and the URL is http://www.epa.gov/ttbnrmrl.

Individual Presentation Evaluation: VOC Instruction Tapes

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	2	5	2	–	–

Average grade: 2

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

• While these types of tapes are very useful for a target audience, they are more time-consuming than a website.

• This is a reasonable, low-cost training tool for similar topics. However, complex topics might engender questions that could not be addressed.

• The main strength of tapes like these are that people can use them at their convenience. However, without having a set day and time, staff may never schedule a time to view.

• Viewers are unable to interact with or question presenters.

• Many expressed the sentiment that it is boring to watch a long video. They were doubtful about whether someone sitting for a long time watching the video would benefit.

- One participant thought that the cost was too high for the end result.

- Several liked the fact that training via video does not require travel money.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	1, 1, 1, 1, 1, 1, 3, 4, 1	2, 2, 2, 1, 4, 2, 1, 3	3, 3, 2, 1, 4, 1, 1, 3	4, 5, 4, 3, 4, 4, 2	Remote video conferencing
Average	1.6	2.1	2.3	3.7	–

Additional comments or explanations of scores:

- The videos miss out on discussion sessions and other valuable interactions.

- One participant felt that the science changes too rapidly and tapes are too difficult to archive, thereby limiting their effectiveness.

4. *Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?*

- Resource documents should be available on the web.

- There's an art to producing good training materials. Good ones intersperse speakers with graphics and video clips, as well as music and other audio. EPA should consult educators, particularly experts in adult education, in producing training materials.

2.1.4   "Interactive" Listservers on Science Topics: QumRiskNet (Jean Circiello - Region 9)

QumRiskNet is a six-month pilot project to create an internal EPA electronic discussion forum. This listserver focuses on high priority topics related to cumulative risks to human health. It aims to foster better communication between ORD and the Regions. Discussions are expected to cover aspects of cumulative risk such as exposure to the same chemical from multiple pathways, exposure to multiple chemicals with similar mechanisms of toxicity, and total risk resulting from all factors affecting the overall health of the individual or group. The project, guided by a workgroup, aims to educate participants about available tools, analytical approaches, technical data, and reports available to clarify cumulative risk issues. Project organizers also hope to evaluate the usefulness of the listserver technology.

The advantage of the listserver is that participants do not need to be together in the same time and place to communicate. In this way, a much broader audience is involved. This listserver will be moderated, meaning that there will be a facilitator to promote discussion. There will be a new topic every month. So far, the workgroup has been collected and initial invitations have been made. Already

75 participants are signed up. Measures for the success of the listserver include an assessment of the quality and number of responses, the diversity of participants, and input from final evaluation forms. Evaluations will look at the usefulness of the listserver technology and potential problems. The pilot program began in November 1999.

In the discussion that followed the presentation, participants requested clarification on the difference between a listserver and a discussion area on a website. A listserver sends out e-mail to everyone on the mailing list containing questions and responses related to the topic of the month. The discussion area serves more as a chatroom and archive of chatroom discussions. Thus, the discussion area fosters more direct interaction.

Individual Presentation Evaluation: Interactive Listservers

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	2	4	2	1	–

Average grade: 2.2

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

- The idea of receiving posts and then summarizing them limits discussion completely and goes against the purpose of a discussion group.

- One strength is that those on the listserver are routinely made aware of topics and information.

- Several participants mentioned concern over Freedom of Information Act requests (FOIA). They believed that this potential might damper the vigor of discussion.

- Another strength is that a listserver provides up-to-the-minute information well before publication. In addition, it is in inexpensive method of communication and is universally accessible.

- Several noted that unless you know about the listserver and subscribe, it is not useful.

- Several expressed concern that the list can waste time on trivial matters. Unless a participant is truly interested, this may translate into information overload and a cluttered e-mail box.

- This is good tool for a narrow audience that needs updates.

3. How would this communication technology be best used? (1 = best suited, 5 = worst suited)

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	5, 1, 5, 5	5, 3, 5, 4	5, 4/5, 3, 5, 4	5, 2, 3, 3	Science/Info dissemination (1, 1,1) Discussion group/ email (1, 1, 1) Routine distribution (1)
Average	4	4.3	4.3	3.3	–

Additional comments or explanations of scores:

• This mechanism is best used in one direction for routine dissemination of information.

4. Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?

• While this is a great idea, there should be some sort of informative mechanism on the Intranet to notify staff of its existence and how to join.

• Another advantage is that no special software is needed.

• Some preferred web-based discussion forums or e-mail for electronic interaction.

2.1.5 Evaluation of ORD Activity Reports and Web Pages (Rollie Hemmett - Region 2)

In a recent project, a selection of ORD activity reports and web pages was evaluated by four EPA Regions (1, 2, 4, and 9). This evaluation focused on determining if the information presented in these products was useful to Regional staff. If the relevant information was present, an evaluation was made to determine whether modifications would make the information more useful to Regional staff. Ten products were selected for evaluation. These products included newsletters from several ORD laboratories, project and activity reports, grant activity reports, and others. Reviewers considered whether the topics were of interest to the Regions, the ease of access, the technical level of the information presented, the level of detail, whether a contact for further information was listed, the availability of other products, and recommendations for improvement.

Topics of interest included science and research information, publications, and lists of upcoming meetings and workshops. Reviewers found that information sought was generally difficult to find. Reviewers had to dig through many layers to find the information they wanted. A consistent format to the products did not exist. It was sometimes difficult to tell what information was available based on titles. Regions want brief summaries of one or two paragraphs of the information available on the main page to determine if it is useful before clicking through the site. Information should be updated regularly.

In most cases, the level of detail was sufficient. Reviewers would prefer to see less background information and more relevant facts. Contacts were generally available. Recommendations included:

- Provide lists of science, research, publications, and meetings

- Develop better mechanisms for searching for information

- Present information in a consistent level of detail and manner of organization on all sites

- Create one central point for linking to all information

- Include research papers as well as abstracts

The Regions expressed their willingness to work with ORD to improve communication via these web sites.

<u>Individual Presentation Evaluation: Evaluation of ORD Activity Reports and Web Pages</u>

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	2	1	2	–	–

Average grade: 2

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

- While some ORD reports and web pages are very useful to the Regions, others have information that is geared toward its own staff. This information is not useful to the Regions and makes it more difficult to navigate.

- Quality of products was seen to vary across ORD and must be made uniform. Access to products should also be improved so that less time is needed to search out sources.

- A searchable database of all ORD research is needed.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	4, 4	4, 4	4, 4	4, 4	Literature searches (1) Information for events (1)

					Individual Use (1)
Average	4	4	4	4	–

Additional comments or explanations of scores:

- Web pages are good sources of science information, while newsletters are short fact sheets of limited technical value except as a starting point.

4. Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?

- Technology has eliminated the need for librarians and made librarians of us all. Computer technology has or will create other job categories. Each office will need someone competent in web searches.

- Many liked the idea of "one-stop shopping" to access reports and webpages within ORD.

2.1.6   NCERQA Topical Search Compilations and Other Virtual Communication (Myles Morse - ORD/NCERQA)

The National Center for Environmental Research and Quality Assurance (NCERQA) has developed a plan to increase awareness of research funded by NCERQA and to make NCERQA research results more accessible. This plan includes program office briefings, seminars, workshops, STAR Summary Reports, State of Science Reports, Integrated Topical Search Documents, and more directed dissemination methods. The goal is to promote research opportunities and to convey current research to those who will use the information. It is hoped that by using these tools, Regions and program offices will become more involved in NCERQA research by identifying their research needs, reviewing and commenting on these research tools, and using ongoing research and research results. Future changes include modifying the search template on the webpage to include more options. Topical search "radio buttons" or shortcuts are also planned.

A demonstration of the information available on the website followed. Participants were shown the types of information available and how to access different types of information on the website. Particular emphasis was placed on the Integrated Topical Search Documents. These documents are designed to provide an overview of all NCERQA STAR and SBIR research on a given topic. The documents are integrated .PDF files that allow the user to view abstracts and results on related subtopics without requiring further searching of the website.

Individual Presentation Evaluation: NCERQA Topical Search

1. How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)

Grade	1	2	3	4	5
Votes	4	–	–	–	–

Average grade: 1

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

   •   While this is an excellent tool, it is a very limited database. Can the tool be copied to the entire ORD database?

   •   This was considered a great way to get information to the people who use it.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	1, 5	1, 4	1, 3	1, 4	Info dissemination (1) Literature searches (1)
Average	3	2.5	2	2.5	–

Additional comments or explanations of scores:

   •   This technology (website) can serve as a reference source for background and current research funded through STAR.

4. *Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?*

   •   This is a great tool that should be applied to other data sources across ORD.

2.1.7   Searching ORD Databases by Science Topic (e.g., TMDLs): A Demonstration of a Cross-ORD Lab and Center Search Capability on the Environmental Information Management System (EIMS) (Robert Shepanek - ORD/NCEA)

There are several challenges facing EPA in connecting staff with the information that they need. These challenges include: (1) developing an inventory of information products and descriptions of items in the inventories; (2) providing easy access to the products using publicly-available, inexpensive software; (3) keeping the collections up-to-date by those who generate and need the information; and (4) creating links among inventories so that information can be found with a single request, regardless of where the information resides. ORD's solution is the Environmental Information Management System (EIMS). EIMS offers "one-stop shopping," where users can search information products across EPA. EIMS, available on the Internet, allows access to a variety of EPA information products and the

information (metadata) that characterizes them. The organization owning the product is responsible for the maintenance of the information product and any related data. These products include data sets, spatial sets, databases, models, documents, and multimedia information from a variety of partners. Current partners include Region 10, ORD laboratories and centers, the Office of Water, the new Information Office, and the State of New Jersey. EIMS anticipates adding additional partners, including other agencies, both directly and through participation in the National Spatial Data Infrastructure (NSDI) and the National Biological Information Infrastructure (NBII). Information products available through EIMS include a wide variety of environmental science subject areas. Currently there are 1,100 records in EIMS.

To demonstrate some of the capabilities of EIMS, participants were shown EIMS search strategies for finding and accessing information products relevant to the development of Total Maximum Daily Loads (TMDL) of pollutants in water bodies. Since EIMS serves as a collection point for Agency-wide information and data, users can search data sets, databases, models, and projects that are part of the EIMS. The system offers secure access to EPA users and less complete access to the public. Search options include general topic searches, as well as more advanced searches, including boolean, map interface, information type, time, and source searches. Once a search is executed, EIMS identifies relevant information with a brief summary and a contact. If a direct link is not available, an access procedure is provided. EIMS also allows users to enter their own information products into the system. These entries are reviewed by a system manager before being made available to all users. Future improvements to EIMS have been planned. These include integrating a map interface and more advanced-search "radio buttons" or shortcuts.

<u>Individual Presentation Evaluation: Searching ORD Databases</u>

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	1	2	–	–	–

Average grade: 1.7

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

- One participant felt that for the types of subjects that would be useful for the Regions, the EIMS databases are still incomplete.

- While the potential of this mechanism is very great, all employees need access.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training	Science/	Science/	Workgroup	Other

	Courses	Technical Seminars	Technical Conferences	Meetings	
Votes	–	–	–	–	Literature searches (1) Science/info transfer (1)
Average	–	–	–	–	–

Additional comments or explanations of scores:

• One participant noted that this could be a good reference source if the databases were sufficiently populated.

4. Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?

No additional comments received.

2.1.8   InfoWorkSpace and MeetingWorks: Collaboration Technology - The Virtual Work Environments (John Miller - ORD/OSP)

InfoWorkSpace is a computer-based collaboration technology now available to EPA. It allows for the formation of ad-hoc virtual workgroups that are spaced across the country. Single applications include video-teleconferencing, desktop video applications, and shared document-production software. The advantages of InfoWorkSpace are that users may be in several different geographic locations at one time, can access virtual meetings in real-time or later at a more convenient time, and extensive set-up and orchestration/preparation is not required. Because InfoWorkSpace is easily accessed through a commercial Internet browser, it facilitates communication, data access, and knowledge management. Collaborative applications include:

• Audio: Audio communication is broadcast to all meeting participants or privately to selected individuals

• Video: Video teleconferencing is available

• Bulletin Boards: Users may post notes on an interactive bulletin board that all can see

• Text Chat: As with audio, text chat can be used by all or shared privately between selected users

• File Cabinet: Users can save common file-type products to a "room" so that other users with permission may then later access these files

- Whiteboard: Participants can annotate an online whiteboard simultaneously so that others can instantly see the input. The whiteboard can be saved separately and multiple image file formats can be handled.

The presentation included example screens from a pilot application of ORD scientists discussing Regional Applied Research Effort (RARE) Projects. Potential EPA applications for InfoWorkSpace include: internal ORD projects, joint ORD-Regional projects, desktop conferencing, asynchronous/real-time distance learning, mass briefings, and search tool applications.

MeetingWorks is a software application that provides brainstorming, evaluation, and analysis tools that may be integrated with a variety of other PC software applications for directing virtual meetings. With MeetingWorks, users can smoothly manage an online meeting. Meeting facilitation tools allow participants in different geographic locations to:

- Collect and display lists of ideas or comments created anonymously

- Present a raw list of ideas for discussion, ending with a structured outline for the meeting

- Gather feedback anonymously and combine and summarize the results with color graphics, identifying areas of consensus and disagreement

- Weight the importance of various factors involved in the decision or vote

- Compare how one possible solution may affect other aspects of an issue and quickly identify problems or conflicts

- Edit or create files as the meeting progresses

- Print a publication-ready document at the end of the meeting

In a pilot demonstration project, 12 participants in geographically different locations met to decide on a location and activity for a group vacation. MeetingWorks provided an agenda, a means for participants to rank locations and activities, a summary of voting, a brainstorming session, a record of comments, a meeting report, and a cross-impact analysis. Potential EPA applications include meetings requiring decisions, potentially-contentious meetings, and meetings that must be held at the same time, but in different locations.

Individual Presentation Evaluation: InfoWorkSpace/MeetingWorks

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5

Votes	4	2	1	–	–

Average grade: 1.6

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

    •   A real-time demonstration of the software is needed to judge its effectiveness.

    •   One weakness is that this communication might be slower than face-to-face discussion.

    •   This technology offers excellent accessibility and is very cost effective. It allows, although imperfectly, participation in meetings without travel funds.

    •   One weakness is that it entails a steep learning curve.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	2, 1, 1, 2, 1	2, 1, 2, 1, 1	2, 1, 2, 1	1, 1, 1, 1, 1, 1	–
Average	1.4	1.4	1.5	1	–

Additional comments or explanations of scores:

    •   In the hands of someone familiar with it, the product would greatly facilitate meetings.

    •   One participant wanted to make this technology available to States and tribes.

4. *Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?*

    •   EPA should run a pilot program to establish the effectiveness of this technology.

    •   This technology should be readily available across EPA.

    •   Cost should be discussed in the presentation so feasibility can be better evaluated.

2.2 Day 2

The second day began with a brief discussion of the first day's technology and presentations. Participant comments focused on the difficulties of getting PlaceWare and especially PicTel to work in the Regions. Suggestions included having a dress rehearsal for speakers so that camera and

microphone placement can be optimized. The Regions often had trouble hearing comments from the audience and speakers if they walked in the front of room rather than standing at the microphone.

2.2.1   <u>Evaluation of an ORD Waste Research Product Database (Dick Garnas - ORD/OSP)</u>

The ORD Waste Research Coordination Team (RCT) developed a database of current and projected research products with the aim of keeping the Office of Solid Waste and Emergency Response (OSWER) and the Regions better informed about ORD research results. In this way, ORD hopes to promote technology transfer of these products and to allow feedback on the direction of ORD research. Reports generated from the database sort research products by Regional research needs, Program Office research needs, and ORD research category. The reports include an ORD contact point, phone number, and anticipated completion date.

A recent survey asked Region and Program Office staff to evaluate the utility of these reports and the database. Survey participants were also asked to evaluate the utility of proposed changes, including product databases/reports for other media, product databases/reports for special topics, and a website for direct access of databases and reports. The ORD Superfund Technical Liaison network was used to access the Regional Waste audience. The ORD Regional Scientists were used to access the Regional Science Council audience. The Lead Region Waste Coordinator was used to access the National Regional Science Council. The Waste RCT lead was used to access other ORD media RCT leads. Survey participants were electronically sent a package including a personal message from the appropriate lead contact, a background paper, examples of the reports, and a multiple-choice questionnaire. Follow-up was done to ensure a high survey response rate. Survey questions asked, and summary results, included:

- Where do you work in EPA?   (90% Regions; 10% ORD); 52 respondents

- What is your primary media area of interest/expertise? (40% Solid Waste/Emergency Response; 18% Water; 15% Pesticides/Toxics/Pollution Prevention; 3% Air; 24% Multimedia/Other)

- In your area of expertise, how informed are you of ORD's research products completed in the past couple of years? (17% Well informed; 43% Not well informed but know where to get information; 40% Not well informed)

- Do you access product information via the Internet from EPA or ORD websites? (34% Frequently; 45% Infrequently; 21 % Never)

- What information transfer methods do you prefer that ORD use to communicate their research results to you? (29% Fact Sheets/Newsletters; 27% Websites/pages; 19% Reports; 17% Workshops; 8% Other)

- What is your general impression of the ORD product reports that were provided in this survey from ORD's Waste Management Research? (11% Excellent; 41% Good; 33% Neutral; 6% Negative; 9% Other)

- Would you ever call one of the ORD contacts identified in the report for more information on a product? (94% Yes; 2% No; 4% Other)

- Which proposed changes would you like to see in future ORD reports? (33% Website access with hyperlinks; 20% Brief descriptive narratives; 17% Product reports for special topics; 15% Product reports for other media; 13% Expanded databases encompassing projects from other Federal agencies; 2% Other)

In general, the survey results showed that the reports are a good method for communicating ORD research to Program Offices and Regions, but that ORD should continue to improve the reports. In addition, there was strong support for phone contacts and direct access to data via a website. Finally, ORD should add narrative descriptions for each product and expand the database to include products from other Federal agencies.

Individual Presentation Evaluation: ORD Waste Products List

1. How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)

Grade	1	2	3	4	5
Votes	1	–	–	1	–

Average grade: 2.5

2. Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?

- Regions have specific information needs. A searchable database and even a bibliography would be very useful.

- This study contains very useful information that should be shared throughout the Agency.

3. How would this communication technology be best used? (1 = best suited, 5 = worst suited)

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	5, 4	5, 4	5, 4	5, 4	Search for products (1) Help in ORD planning (1) Individual Use (1)
Average	4.5	4.5	4.5	4.5	–

Additional comments or explanations of scores:

No additional comments were made.

4. Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?

- This technology should be well publicized.

- Tangible documentation is valuable. It will always be imperfect, but if it is tangible (documented) it can evolve and be upgraded, clarified, and corrected.

2.2.2   Evaluation of ORD Community Science Products (Jan Baxter - Region 9)

ORD has recently created an inventory of science products that may help in community environmental decision making. The Regions are considered the main users of this inventory. With this in mind, the inventory is currently being reviewed from a Regional viewpoint. The review process will:

- Identify products that are most likely to be useful to the Regions and communities.

- Match target audiences with products.

- Determine how ready these products are for transfer to the Regions.

- Provide the Regional view of how much expertise, additional training, or special equipment may be needed to use the products.

- Determine if a laboratory would be willing to provide ongoing support for a product.

- Generate a "best" product list for further Regional review. This review will ultimately produce a shorter list that will be given to the Regions for review and comment.

The results of this review will help ORD identify the products that should be swiftly transferred to the Regions for use and given priority support from ORD. The results will also determine whether this process should be continued and the inventory periodically updated. Finally, the results will identify what may provide the best content and most user-friendly format for this type of information.

The inventory began as a list of all ORD laboratories and centers. The labs and centers were then asked to make a list of current or planned products. Three classes of products were identified: direct-use products, products requiring some help or special knowledge, and products requiring a lot of help or special knowledge. Over 220 products have been identified. Currently, the products are being sorted into classes that identify target audiences and potential uses. Some in-depth interviews have been conducted and more are planned. The project has identified many interesting products, ut it is too early to tell which might be especially useful.

Individual Presentation Evaluation: ORD Inventory of Community Science Reports

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	–	–	1	–	–

Average grade: 3

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

- This provides a starting place to find information, but does not actually deliver the science information.

3. How would this communication technology be best used? (1 = best suited, 5 = worst suited)

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	2, 5, 1	2, 5	2, 5	2, 5	E-mail dissemination (1) Helping customers find useful products (1)
Average	2.7	3.5	3.5	3.5	–

Additional comments or explanations of scores:

• This information could be handed out at training courses, seminars, and conferences.

• The technology is useful for environmental professionals outside the Agency as well.

4. Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?

• Once the formal products are determined, the Agency should plan to discuss the results in a PlaceWare discussion. The Agency should also identify communities for full testing.

• This work points to the need for training Regional scientists in library science and web search skills.

2.2.3   <u>State of the Science Reports Using the Example of the Bioavailability of Waste for Bioremediation: Pilot Project on Mechanisms for Transferring and/or Translating Science (Robert Menzer - ORD/NCERQA)</u>

NCERQA has joined with the National Science Foundation (NSF), the U.S. Department of Energy (DOE), and the Office of Naval Research to sponsor a grant program on bioremediation, with special emphasis on bioavailability. Competitions for grants were held in 1996-1998. Approximately 30 grants were awarded. In 1998 and 1999, program reviews were held and grantees presented progress reports. With this information now available, a State of the Science Report has been initiated to summarize and critically review what is currently known about the chemical and physical characteristics of the behavior of waste substances in soils, sediments, and groundwater with respect to their bioavailability for bioremediation. The report will summarize currently available information on the subject. The target audience is OSWER, the Office of Prevention, Pesticides, and Toxic Substances (OPPTS), ORD, and the Regions. NCERQA may also use the report to consider future research initiatives in this and related subjects. Dr. Eugene L. Madsen of Cornell University will write the report. A first draft is scheduled for January 2000, with a peer review period beginning in March 2000. A final draft is anticipated at the end of April 2000.

Individual Presentation Evaluation: State of Science Reports

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	2	–	1	1	–

Average grade: 4.5

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

- Because of the highly technical content, this technology requires a huge investment to produce, but it synthesizes a vast amount of information, making it available in one place.

- The main weakness of these reports is that they are static and would require constant updating to remain current.

- While these reports would directly support science planning, they would be only of general interest to the Regions, who tend to be so involved in programmatic issues that staff don't have time for general interest products.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	2, 2	2, 1	1, 2	2	Distribution (1) Info dissemination (1) Convey general background (1) Self-teaching (2)
Average	2	1.5	1.5	2	–

Additional comments or explanations of scores:

- These reports could be useful as background information for meetings related to the topic.

4. *Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?*

- This type of report may not be as immediately applicable as other technologies.

- One participant felt that this tool was not very useful to the Regions.

2.2.4   Satellite Downlink on Advanced Monitoring Initiative Products (Peter P. Principe -
          ORD/NERL)

The Advanced Measurement Initiative (AMI) was designed to demonstrate remote sensing technology that could be used in routine monitoring operations to replace or enhance traditional data gathering methods. The problem was: how to distribute the results of these demonstrations to those who were the target audience for the results demonstrations? The Education and Outreach Group (EOG) in the Office of Air Quality, Planning, and Standards (OAQPS) was enlisted because their closed-circuit television network, the Air Pollution Long Distance Learning Network, reached precisely this audience. A four-hour videotape describing AMI and its nine demonstration projects is currently being prepared for broadcast on December 1, 1999. The EOG regularly creates and broadcasts a wide range of videotaped programs via its own private, closed-circuit network, which reaches all EPA Regional Offices, most State environmental offices, and many local environmental offices. This broadcast format will allow viewers to ask questions about the individual projects and receive live answers via the closed-circuit network. The advantages of this broadcast are that viewers do not need to be in the same location, travel funding is not needed, the size and relevancy of the audience is much greater, videotapes of the broadcast can be used either as stand-alone information distributions or in conjunction with presentations made by project teams, and the broadcast tape can be used as the basis for creating project-specific videos when combined with extra footage and graphics. The cost of the broadcast is comparable to creating video highlights of a workshop; the broadcast costs about $10,000 and preparation of the videotape ranges between $20,000-$50,000. The broadcast format used for the AMI video consists of an introductory segment and profiles of the nine projects. There exists the possibility of having live question and answer sessions where questions can be phoned or faxed to a central location. Once the broadcast video is completed, additional products can be created from footage and graphics. These include project-specific videos, training videos, QuickTime videos for the web, and annual updates.

Individual Presentation Evaluation: Satellite Downlink/AMI Video

Note: The following evaluation was based on viewing only a small clip of the broadcast and not the actual video, which contained much more content. In addition, remote viewers were unable to view the clip. Consequently, it cannot be considered a proper evaluation of the broadcast option. For other projects, the video can contain exactly what the creators wish, and is therefore constrained only by their imagination and budget.

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	1	3	–	1	–

Average grade: 2.2

2. Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?

- The video provides a good technical summary for users to get the basics of remote sensing technology.

- One weakness for these types of videos is the high cost.

- If broadcasts can be viewed later, EPA should make these available to the public.

3. How would this communication technology be best used? (1 = best suited, 5 = worst suited)

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	1, 1, 3	1, 1, 2	4, 1, 3, 1	4, 3	–
Average	1.7	1.3	2.3	3.5	–

Additional comments or explanations of scores:

- Remote sensing videos would be very useful for local communities, the public, schools, and local agencies.

- The main weakness to this tool is that it requires a huge effort.

4. Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?

- This product should be well advertised so that potential users know about it.

2.2.5   Video Presentations on the Web (Mark Hemry - Region 9)

Region 9 has begun to make video footage available on its Intranet website via a Lotus Notes Domino Server with RealServer G2 capabilities. RealMedia is a tool that converts standard audio and video into streaming media clips. These video clips are usually transferred from VHS tape (though digital cameras are preferred), digitized, edited, and made available through the website, where users can view the footage by using a RealMedia player that is downloadable from the Internet. Using the RealMedia streaming technology means that the clip file is never downloaded to the user's computer but is gone as soon as it is viewed or heard. This is why streaming is so much faster than downloading a file. In addition, the RealPlayer used to view clips automatically downloads any plug-ins needed to view or hear the footage. In addition, the RealPlayer can switch back and forth between bandwidths almost seamlessly to accommodate changes in network usage. When footage is encoded for RealMedia clips,

it is automatically encoded for multiple bandwidths, so that a computer of any speed can access the clips without having to convert them.

To make a RealVideo clip, video is recorded, digitized, encoded, and delivered to the RealPlayer. Using the RealNetworks mark-up language, clips can be edited to layout and customize presentations, control timing, coordinate clips on different servers, and support multiple languages. In addition, text windows, overlapping Regions, and running banners can all be added. Live content can also be broadcast over the web using RealMedia technology. So far, Region 9 has used this technology for encoding information training videos (originally in VHS format) for the Region's Intranet site, tele-video conferencing, and recording presentations in both Hi8 mm and DV video formats. Region 9 is planning for Region-wide training, live video broadcasts of meetings and conferences, Region-wide broadcast messaging, and preparation of video news clips for broadcast affiliates, with preview capability via RealPlayer on the Internet. Participants viewed footage via the Internet as part of a demonstration of the technology. They were able to compare VHS footage versus digital camera footage, footage with different types of microphones in various locations, and edited versus unedited footage.

Individual Presentation Evaluation: Video on the Web

1. *How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)*

Grade	1	2	3	4	5
Votes	7	3	1	–	–

Average grade: 1.5

2. *Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?*

- This is a very powerful technology and EPA should not be slow to support it.

- A video library that people can access at their desks rather than going to the Regional library would be very useful.

- The weaknesses are that it requires considerable computer literacy and it has a steep learning curve.

- One strength is that it provides real-time continuous information, such as weather and pollution patterns.

- A main weakness is that it is expensive and requires video training and equipment.

3. How would this communication technology be best used? (1 = best suited, 5 = worst suited)

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	1, 1, 1, 1, 1, 2, 2	1, 1, 1, 1, 1, 1, 4	1, 2, 1, 2, 1, 1, 4	1, 2, 1, 4, 1, 4, 4	Information Dissemination (1)
Average	1.3	1.4	1.7	2.4	–

Additional comments or explanations of scores:

- This is a very impressive technology that would be especially good for live broadcast of events.

4. Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?

- Word should go out to user communities. Demonstrations are needed.

- To transfer ORD products, investigators would need to struggle up a learning curve. Otherwise management would have to invest in support services and perhaps an infrastructure as well.

- This is a good tool to incorporate real-time data on the Internet, but it is not as useful for meetings.

2.2.6 <u>Instructional CD-ROM on Natural Attenuation: Pilot Project to Evaluate a CD-ROM as a Technology Transfer Tool for Monitored Natural Attenuation of Petroleum Hydrocarbons in Groundwater (Dan Murray - ORD/NRMRL)</u>

EPA's Regional offices, State governments, engineering and consulting firms, and others have a strong interest in the natural attenuation process of petroleum hydrocarbons in groundwater and in EPA's guidance for monitored natural attenuation (MNA). Because of this interest, EPA and the United States Geological Survey (USGS) presented a series of ten seminars on MNA in 1998 and 1999. Though the seminars had high attendance, many others interested in MNA were not able to attend, particularly State regulators. To aid the transfer of MNA information, the Technology Transfer and Support Division of NRMRL developed a five CD-ROM set that addresses the portion of the seminar that focused on MNA and petroleum hydrocarbons. The development of the CDs involved selecting the seminar topics to be included, videotaping those presentations, producing and reviewing the initial CD set, and creating an enhanced set based upon reviewer comments. The initial set of CDs was distributed to subject matter experts for technical evaluation. During this review process, the Technology Transfer and Support Division continued to develop the enhanced version of one of the CDs. The CDs start with a main menu. By making a series of selections, the user can view seminar footage for a particular topic. The series of topics may be viewed sequentially or at random.

There are several advantages to using CD-ROM sets to communicate the content of technical seminars. A wider audience has access to the information. The CD presentations allow viewers to refer to websites and other sources of technical information while using the module. In this way, users of various levels of expertise may familiarize themselves with specific topics as they use the CDs, unlike in a seminar. In addition, the CDs save on travel expenses. Finally, the CDs are self-contained and require only a computer with a CD-ROM drive.

Individual Presentation Evaluation: CD-ROM

1. How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)

Grade	1	2	3	4	5
Votes	7	2	–	–	–

Average grade: 1.4

2. Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?

- This is most impressive as a training tool. Information about it should be posted on a website.

- The video quality available on the CD-ROM is inferior. Also, there is no opportunity to ask questions directly when using this technology.

- The strengths are that it can easily be duplicated and can serve as an excellent training tool for States and tribes.

- EPA needs to consider technical editions and educational and graphical/artistic consultants.

- This mechanism is cost-effective and easily distributed. It provides consistent presentation quality and content.

- One weakness is the inability for questions and discussion.

- One strength is that people can be educated cheaply and effectively with few computer hardware requirements on the part of the user.

3. *How would this communication technology be best used? (1 = best suited, 5 = worst suited)*

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	1, 1, 1, 1, 1, 1, 1, 1, 1, 3	3, 5, 1, 4, 1, 1, 1, 4	3, 5, 1, 4, 1, 5, 3, 4	3, 5, 5, 4, 3, 5, 5, 4	Reference material (1) Information dissemination (1) Individual Use (1)
Average	1.2	2.5	3.25	4.25	–

Additional comments or explanations of scores:

• While the information is quickly dated, it could be useful for seminars, conferences, and workgroup meetings.

• This tool is useful for providing reference materials, such as models, methods, and maps.

• Very good for training courses, and possibly after a good conference.

4. *Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?*

• It should be coupled with streaming technology for remote access.

• This is a good tool for those times when training demand exceeds supply.

2.2.7   Internet Training Course on Groundwater Contamination: Modeling Subsurface Transport of Petroleum Hydrocarbons (Jim Weaver - NERC)

ORD is currently adapting an existing course on modeling subsurface transport of petroleum hydrocarbons for delivery via the Internet. This online training course is being developed to meet the increasing demand for onsite courses on the topic, lowered training costs, and the ability to integrate desktop modeling and the Internet. It is also hoped that the project will foster interaction between ORD and those in the field needing to solve specific problems. Interactive features of the course include online calculators for important quantities and animated model applications. After a short overview, the course addresses fate and transport of contaminants in part one and model application in part two. The course, which will run for two to three weeks for one to one and a half hours each day, will include an interactive discussion session. Interactive modeling exercises will also be included, along with online quizzes. Development of the content of the modules runs through April 2000. Testing of the Internet course will include beta testing for the modules and peer testing of the entire course. A demonstration based on a course module was given.

Individual Presentation Evaluation: Internet Training

1. How effectively did this technology communicate the science/technical information? (1 = extremely effective, 5 = not effective)

Grade	1	2	3	4	5
Votes	6	1	–	–	–

Average grade: 1.1

2. Based on your experience(s) with this technology, what were its strengths and weaknesses in communicating the science/technical information?

- This is an excellent way to attend training and effectively capture and transfer knowledge.

- This approach can be generalized and used for other topics.

- When the production effort is justified by demand for training, there are no apparent weaknesses.

- This mechanism allows for cost-effective training.

- Internet-based training is cost-effective and easily accessible. It provides consistent presentation quality and content.

- One participant especially liked the online calculator.

3. How would this communication technology be best used? (1 = best suited, 5 = worst suited)

Use	Training Courses	Science/ Technical Seminars	Science/ Technical Conferences	Workgroup Meetings	Other
Votes	1, 1, 1, 1, 1, 1, 1	5, 5, 1, 1, 1	5, 5, 1, 1, 4	5, 5, 3, 1, 4	In-field communication (1)
Average	1	2.6	3.2	3.6	–

Additional comments or explanations of scores:

- This tool can be used for seminars, conferences, and meetings that have a training element.

- Medical personnel, students, RCRA and Superfund onsite coordinators, and risk assessors can all use this tool, especially the calculators for risk assessment.

4. *Other comments you have about this communication technology, including your suggestions on how to make it a more effective science/technology transfer tool?*

- This tool should be available on the web for direct use by the public. It would make a good tool for academic use.

- Tools like this are what the Regions really need to keep their staff trained and up-to-date. The Regions do not currently provide very much scientific training to staff.

3. Demonstration and Discussion Sessions

3.1 Day 1

3.1.1   Asthma and VOC Videotapes

During the first demonstration session, participants watched footage of the Asthma workshop. This provided a sense of how the workshop proceeded and the level of technical information presented. Participants also viewed segments of the VOC workshop video, prepared as a transfer tool to increase the workshop's audience, to gain a sense of the technology's potential. The discussion that followed focused primarily on the technical aspects of the videos. Several attendees commented that it was difficult to see the slides on the videos and suggested that the slides be digitally included in the videos. Another suggestion was to include a book of slide materials along with the video. Several participants said that they liked the way that the VOC video cut back and forth between the speaker and the slides. This was done by filming both separately and splicing the two together during the editing process.

3.1.2   NCERQA Targeted Search

The second demonstration session featured a tour of the main features of the NCERQA search tools available online. At the NCERQA homepage level, users can search using "radio buttons" (by topic) or a keyword search. Search results are provided in tabular form. The discussion that followed focused on information links available through the NCERQA website. Links to the centers, for example, are given if the centers have homepages.

3.2 Day 2

3.2.1   Video on the Web, Satellite Downlink, and Underground Storage Tank CD-ROM

The first demonstration session on the second day featured streaming and satellite technology. To demonstrate RealMedia capabilities, Mark Hemry of Region 9 guided participants through streaming projects completed and available on the Region 9 secure website on the EPA Intranet. Examples of RealVideo clips included a NASA presentation that was filmed on VHS, and then digitized and filmed using a digital camera. This enabled viewers to compare the quality of the footage. Footage for a PicTel meeting was shown as well. By using streaming technology, web viewers can see the accompanying slide show as well as the speaker. The discussion that followed focused on what skills are needed to become proficient at streaming technology and what restrictions exist due to server capability. In the second part of this session, footage from the video prepared for the AMI satellite downlink was shown. Audience discussion centered on expanding the target audience, especially to academia. The group also participated in a demonstration of several of the training modules on the Underground Storage Tanks CD-ROM. Jose Perez of NRMRL explained the capabilities of the CD-ROM, while participants watched on a large screen.

After these demonstrations, a participant began a spontaneous discussion of the pros and cons of video streaming versus CD-ROM technology. The advantages of using the CD-ROM are that it is self-contained, needing no additional hardware or software on the part of the user; it is inexpensive to produce; and it allows the user to go through the material at his or her own convenience and speed. However, it is a static presentation that is more difficult to update. The RealMedia streaming technology also has the advantage of allowing the user to work at his or her own convenience. In addition, this technology is easy to update and can accommodate live meetings and conferencing via the web. The cons to this technology are that live streaming files are not saved; the technology is potentially a large drain on the server; and the initial equipment needed to produce and edit streaming files is expensive.

3.2.3 Learning about Groundwater via the Internet

The final demonstration session of the second day featured a guided tour of the web-based training course on groundwater contamination. Participants were shown illustrations of the information and tools available through this course. The coursework includes specific site examples so students can see real world problems and applications, interactive modeling exercises, online calculating tools, and online quizzes. After the demonstration, discussion focused on potential frustration of users with online courses and suggestions for improvement. One participant noted that for people without much background in using the Internet, online learning can be frustrating and they often give up. It was also noted that in designing the groundwater course, it was difficult to find examples of online learning because one must register for the course to gain access. Suggestions for improvement included adding video footage and making the course as interactive as possible.

4. Wrap-Up Discussions

4.1 Review of Evaluation Forms

David Klauder and Jan Baxter led the final discussion session by summarizing comments from the evaluation forms that had been received earlier in the day. Important points included:

- People have very strong feelings about webpages and the Internet. They either love the technology or they hate it. There is a small, but very dedicated following for Internet information technologies. The chief suggestion from Internet proponents was to make sure that websites are updated regularly. In general, those who were more familiar with the Internet gave those technologies higher marks.

- ORD scientists should be responsible for creating those portions of websites that have to do with their projects.

- With regard to listservers, there was some concern about having a moderator. Most preferred to have direct communication with others.

- There was a great deal of interest in "one-stop shopping." There should be one central site that leads to the information being sought.

- Many said that more or better marketing is needed for products that do exist. A list of all ORD products would be very useful.

The discussion that followed these summaries covered the listserver moderator issue, centralizing information onto one site, and the need to develop a plan for utilizing these technologies. While the idea of a listserver moderator was clarified, many expressed concern over not getting the information directly, lag time in obtaining information, and the work involved to have a moderator. One participant noted that EPA's Information Office is looking for partners to work with to solve web problems. This led to a suggestion that a strategy be developed for identifying and using new technologies.

4.2 Wrap-Up Discussion

After the discussion regarding individual evaluations, the workshop facilitators changed the focus to four designated topics:

- The experience of participating via PlaceWare
- Communication mechanisms that participants will be looking into further
- Whether EPA should be considering other communication mechanisms
- The pros and cons of active and passive transfer

Many remote viewers agreed that PlaceWare provides the advantage of seeing the slides while hearing the presentations. However, there were several criticisms. It was difficult to hear speakers if they moved away from the microphone. It was difficult to hear questions asked by the live audience. But the remote audiences like the ability to hit the mute button and carry on a simultaneous discussion about a subtopic. All participants appreciated the travel savings that these types of technologies provide. PlaceWare costs $6,500 for 400 days of use with 20 licenses. However, PlaceWare requires Microsoft Powerpoint, while the Agency standard is Freelance. Many agreed that PlaceWare and video streaming were cost-effective methods of communication that they were likely to look into further.

The group then turned to a discussion of Internet-based technologies. While many felt that it is important to maintain websites, this is also a time-intensive function. One participant noted that there is no reason to consider websites permanent creations; they can be temporary and removed once they have served their purpose. Many in the group had concerns over the hardware and software needed to use these technologies, and whether the Agency would support upgrades.

Passive versus active transfer seemed a matter of personal preference. Passive transfer refers to tools like listservers that send information out to users. Active tools involve the user actively seeking information, such as searching a website. Some felt that passive tools lead to information overload. Others liked the time-saving aspect of passive mechanisms. The group concluded that the use of active or passive transfer depends upon the user and the topic.

5. Analysis of Evaluation Forms

Summaries of the evaluation forms for each individual technology are given after the summary of the presentation of that technology. An overall summary of these comments is provided below, as well as an analysis of the forms filled out by participants to evaluate the Info Fair as a whole.

5.1 Summary of Comments from Individual Presentations

Based on the number of evaluations received, the presentations on the Asthma web page (10), Video on the web (10), CD-ROM instruction (10), the Asthma Workshop (9), the VOC instruction tapes (9), and the Interactive Listservers (9) generated the most interest among participants. Comments focused on possible uses and audiences for these new technologies. However, many participants mentioned concerns over the Agency's perceived resistance to new technologies. Many cited concerns about existing hardware/software's inability to handle these new technologies. Budget limitations were also viewed as an obstacle to implementing these new means of communication. However, the comment was often made that virtual meetings, videos, computer video, satellite uplinks, and CD-ROMs made information available to a wider audience, because the Regions and program offices did not have to use limited travel resources. Another comment from several presentation evaluations was that there should be one central location to begin a search for information. The Regions were very interested in compiling either a bibliography or a searchable database with all available research. Finally, most participants expressed approval for any method that allowed staff to access the material at their convenience.

5.2 Info Fair Evaluation

The overall response to the Info Fair and the communication technologies presented was very positive. Many participants mentioned a number of websites that they plan to use after the Info Fair. Based on comments from the evaluation forms, CD-ROM training, satellite downlinks, and streaming audio and video were particularly well-received technologies. However, many respondents noted that they would like training to become computer-proficient enough to use these technologies, as well as online databases, search engines, and web-based training courses. In addition to computer skills, differences in the infrastructure between ORD and the Regions was seen as another obstacle to implementing new technologies. Again, the Regions would like to see a compilation of all of the ORD products available. In terms of improving future Info Fairs, many felt that too much information was presented. It was difficult for the audience to process all of the information given to them. Future Info Fairs should limit the number of technologies presented, perhaps providing more hands-on time for participants.

A summary of the responses to each question on the Info Fair evaluation form follow.

1. *Which communication technologies will you likely begin to use in your work, based upon what you have seen at Info Fair?*

- Many participants mentioned a number of websites that they plan to use after the Info Fair.

  - Several participants expressed interest in using the PlaceWare, InfoWorkSpace, MeetingWorks, and PicTel technologies.

  - Several respondents noted that they would like training to become more computer-proficient and therefore better able to use online databases, search engines, and training courses.

  - CD-ROM training, satellite downlinks, and streaming audio and video were exciting topics to many participants.

  - One participant noted that all participants must be made aware of which technologies are supported in each Region.

2. *Which communication technologies do you think EPA should try to implement, based upon what you have seen at Info Fair?*

   - The RealMedia technology has many benefits to offer Regional staff for their participation in workshops and seminars remotely. Web-based video and CD training courses will also be useful applications.

   - One participant suggested that the training CD-ROMs be uploaded to the web.

   - A network for people with technical ability should be established to see how they can improve the technologies, particularly the Internet, PlaceWare, PicTel, and RealMedia.

   - PlaceWare, PicTel video conferencing, CD-ROM training, video/audio streaming via RealMedia, and Internet-based training were all popular choices for technologies that the Agency should soon implement.

   - Data available through EIMS should be supplemented.

   - More subject-specific websites should be created.

   - The Agency should implement better announcements of listserver availability to interested parties.

   - PlaceWare or its equivalent would be useful for meetings involving visual presentations and remote participants. Utilization of this technology could not be justified if the visual presentation included narrative slides only.

   - CD-ROMs appear promising, but should be supplemented with updated websites.

- Real Media is promising for showing environmental issues to the public and to fill in gaps for live demonstrations. Implementation will depend on what ORD is willing to do, since the Regions are largely consumers.

- One participant noted that there are differences in infrastructure between the Regions and ORD. This would be a useful topic to explore. EPA should investigate how the Regions might become more compatible.

3. *How would you rate your overall experience at the Info Fair? (1 = very rewarding, 5 = not worthwhile)*

Mode of Participation	Number of Votes					Average
	1	2	3	4	5	
Attendee	4	6	2	–	–	1.8
PicTel	–	1	1	–	–	2.5
Internet/Teleconference	–	–	1	–	–	3
Unspecified	–	–	–	–	–	–

4. *Did you learn enough about the communication technologies to evaluate their feasibility for your use? (1 = very helpful, 5 = not useful)*

Grade	1	2	3	4	5
Votes	5	5	3	–	–

Average grade: 1.8

5. *Did you get sufficient opportunity to provide input and comment on the technologies? (1 = very good opportunity for feedback, 5 = no opportunity for feedback)*

Grade	1	2	3	4	5
Votes	4	4	2	1	–

Average grade: 1.8

6. *Should there be another Info Fair, and if so, how could it be improved?*

- Several suggested holding the workshop using streaming technology.

- ORD should prepare a matrix listing all technologies/mechanisms for communication according to the ORD products for which they are most suitable. Future workshops could train the Regional and program staff on the identification and use of ORD databases. This could be done on location, through a CD-ROM, or through web training.

- Even with the finest technology, good speaking and writing skills are needed. With the higher technologies, producing/directing/writing skills should be included as well. No matter what technologies are used, events such as the Info Fair will succeed only when presentations are well developed. Poor public speaking and writing skills, slides that are too busy, and presentations that are not well organized or delivered will keep any workshop from being completely successful.

- Besides trying to understand the technology presented, the audience was also trying to assimilate PlaceWare and PicTel. Most had never seen either of them. Often the live audience didn't know what camera was filming the shot or what the Regional counterparts were seeing. An in-depth presentation of the technologies being used (conference call, PlaceWare, PicTel, videotape) should have kicked off Info Fair.

- Fewer technologies should be showcased in future Info Fairs to prevent information overload. Too much information was presented in too short a time.

- High tech training methods are a good use of time. Organizers might consider more hands-on time as well.

- Info Fair was an excellent source of information transfer, particularly with regard to the development of training for technology transfer to the Regions.

- ORD and program offices need to attend future Info Fairs and should be encouraged to remain throughout the entire workshop. The lack of participation by researchers and Regions was frustrating.

- A wider mix of EPA staff should be invited. Invitations to attend should be extended to management-level Regional staff and DSM staff.

- More time for feedback should be provided.

- Presentations should focus on the technology and not the scientific topic of the presentation which is being used to demonstrate the tool.

- Info Fairs should be held twice per year.

- The technologies and technology transfer projects presented should be made very visible throughout EPA, since many are not known around the Agency.

- Info Fair should also be open to contractors who are responsible for information and audio/visual equipment.

- If the objective is to demonstrate and evaluate remote-participation technologies, present them one at a time and in detail with an opportunity for participants to use it themselves. The Info

Fair was like viewing previews of coming attractions. The value of becoming aware of these technologies is diminished if they cannot be implemented and used immediately.

- The next Info Fair should introduce and emphasize the ORD products that currently exist. Also, the EPA Scientific Visualization Center could make a significant contribution.

Appendix A. List of Participants

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October 27-28, 1999

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Appendix B: Agenda

COMMUNICATING SCIENCE: WAVES OF THE FUTURE
October 27 - 28, 1999
WIC 3 Waterside Mall, Washington, DC
David Klauder and Jan Baxter, Facilitators

<u>OCTOBER 27</u>

8:30 - 9:00 Introduction - Dorothy Patton (ORD/OSP)

9:00 - 9:20 Asthma Workshop Review - Sheila Batka (R-5)
- An ORD/Regional Workshop Designed to Address Specific Regional Questions about the Science of Asthma

9:20 - 9:40 Asthma Web Page - Lisa Ryan (ORD/OSP)
- A Product of the Asthma Workshop to Foster Continued Communication among EPA Scientists on Asthma Science Issues

9:40 - 10:00   Volatile Organic Compound (VOC) Instruction Tapes - Scott Hedges (ORD/NRMRL)
- An Edited Set of Videotapes of a VOC Recovery Seminar of September, 1999, Each with a Table of Contents and Tape Counter for Easy Access to Desired Presentations

10:00 - 10:20 "Interactive" Listservers on Science Topics - Jean Circiello (R-9)
- A Mechanism to Notify and Discuss the Latest Science and Science Policy Information on Specific Topics

10:20 - 10:40   BREAK

10:40 - 12:00 DEMONSTRATION & DISCUSSION SESSION A (See Box Below)

12:00 - 1:00   LUNCH

(start of open PicTel session)
1:00 - 1:20 Evaluation of ORD Activity Reports and Web Pages - Rollie Hemmett (R-2)
- Multi-Region Review of the Utility of ORD Activity Reports and Web Pages

1:20 - 1:40 NCERQA Topical Search Compilations and Other Virtual Communication - Myles Morse (ORD/NCERQA)
- A Search Tool That Provides a Summary of Ongoing NCERQA Research by Science Topic

1:40 - 2:20 Searching ORD Databases by Science Topic (e.g., TMDLs) -
        Robert Shepanek (ORD/NCEA)
                • A Demonstration of a Cross-ORD Lab and Center Search Capability on the
                  Environmental Information Management System (EIMS)

2:20 - 3:00 InfoWorkSpace and MeetingWorks - John Miller (ORD/OSP)
                • A Demonstration of Two Examples of "Virtual Work Environments" via the Internet;
                  InfoWorkSpace Will Be Used by Onsite and Remote Participants
(end of open PicTel session)

3:00 - 3:20 BREAK

3:20 - 5:00   DEMONSTRATION & DISCUSSION SESSION B (See box below)

DEMONSTRATION & DISCUSSION SESSION A
WIC 3: Introduction to Training Rooms (20 min)
                  Asthma Tape (20 minutes)
                  VOC Tapes (20 minutes)

TR 1 & 3:   Free form access to Intra and Internet sites and CD-ROMs

DEMONSTRATION & DISCUSSION SESSION B
WIC 3: NCERQA Targeted Search (20 min)
TR 1 & 3:   Free form access to Intra and Internet sites and CD-ROMs

TR 1 & 3:   PlaceWare - participants (local and remote) provide written
                  comments, from PCs, on Day 1 presentations (40 min)
                  Free form access to Intra and Internet sites and CD-ROMs

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OCTOBER 28

8:30 - 8:40   Check In - Jan Baxter (R-9)

8:40 - 9:00 ORD Waste Product List - Dick Garnas (ORD/OSP)
- Multi-Region and Program Office Review of the Utility of an ORD Database of Waste Research Products of Regional Interest

9:00 - 9:20 Evaluation of ORD Community Science Products - Jan Baxter (R-9)
- Region-Lead Review of an ORD Inventory of Community Science Products

9:20 - 9:40 State of Science Reports Using the Example of the Bioavailability of Waste for Bioremediation - Robert Menzer (ORD/NCERQA)
- An ORD Report to "Translate" the Results of NCERQA Grants on this Topic for Program Office and Regional Use

9:40 - 10:00   Satellite Downlink on Advanced Monitoring Initiative Products - Peter Principe (ORD/NERL)
- An OAR-Sponsored Mechanism to Broadcast the Results of Science Projects to State and Local Organizations over Closed Circuit TV

10:00 - 10:20   BREAK

10:20 - 12:00   DEMONSTRATION & DISCUSSION SESSION C (See box below)

12:00 - 1:00   LUNCH

1:00 - 1:20 Video Presentations on the Web - Mark Hemry (R-9)
- A Demonstration of the Use of Real Networks Software to Give Streaming Media Presentations to PCs

1:20 - 1:40 Instructional CD-ROM on Natural Attenuation - Dan Murray and José Perez (ORD/NRMRL)
- Multi-Regional and Program Office Review of the Utility of CD-Rom as a Training Tool for Science and Engineering Topics of Interest to the Regions

1:40 - 2:00 Internet Training Course on Groundwater Contamination - Jim Weaver (ORD/NERL)
- Multi-Regional Review of the Utility of the Internet as a Distance Learning Mechanism to Train Scientists on Science Topics

2:20 - 2:40 BREAK

2:40 - 3:40 DEMONSTRATION & DISCUSSION SESSION D (See box below)

3:40 - 5:00 INFO FAIR SUMMARY DISCUSSION

DEMONSTRATION & DISCUSSION SESSION C
WIC 3: Video on the Web (20 minutes)
                Satellite Downlink (20 min)
                UST CD-ROM (20 min)

TR 1 & 3:   Comments via PlaceWare on morning session (40 min)
                Free form access to Intra and Internet sites and CD-ROMs

DEMONSTRATION & DISCUSSION SESSION D
WIC 3: Learning about Groundwater via the Internet (40 min)

TR 1 & 3:   Comments via PlaceWare on afternoon session (20 min)
                Free form access to Intra and Internet sites and CD-ROMs

Appendix C: Evaluation Forms

Appendix D: Presentation Materials

Appendix E: Video Tape Index

COMMUNICATING SCIENCE: WAVES OF THE FUTURE
October 27 - 28, 1999
WIC 3 Waterside Mall, Washington, DC
David Klauder and Jan Baxter, Facilitators

Video Tape Index

Note: Items in bold and italics correspond to items on the agenda.

TAPE 1

<u>**October 27**</u>

0:0:0 - 0:0:50   PlaceWare Set-up
0:0:50 - 0:03:15   David Klauder's Introduction

0:03:15 - 0:06:40   Attendee Introductions
0:06:40 - 0:11:30 Introduction - Dorothy Patton (ORD/OSP)

0:11:30 - 0:25:05   David Klauder's Introduction (continued)
0:25:05 - 0:26:15   Jan Baxter's Introduction

0:26:15 - 0:48:00 Asthma Workshop Review - Sheila Batka (R-5)
   • An ORD/Regional Workshop Designed to Address Specific Regional Questions about the Science of Asthma

0:48:00 - 0:50:30   Process Discussion

0:50:30 - 1:14:15 Asthma Web Page - Lisa Ryan (ORD/OSP)
   • A Product of the Asthma Workshop to Foster Continued Communication Among EPA Scientists on Asthma Science Issues

1:14:15 - 1:15:00   Process Discussion

1:15:00 - 1:34:00 Volatile Organic Compound (VOC) Instruction Tapes - Scott Hedges (ORD/NRMRL)
   • An Edited Set of Videotapes of a VOC Recovery Seminar of September, 1999, Each with a Table of Contents and Tape Counter for Easy Access to Desired Presentations

1:34:00 - 1:35:20   Process Discussion

1:35:20 - 1:57:45 *"Interactive" Listservers on Science Topics - Jean Circiello (R-9)*
- A Mechanism to Notify and Discuss the Latest Science and Science Policy Information on Specific Topics

1:57:45 - 2:01:15   Process Discussion

TAPE 2

0:00:00 - 0:12:00 *Introduction to Training Rooms*
0:12:00 - 0:26:30 *Highlights of Asthma Workshop Video*
0:26:30 - 0:52:50 *Highlights of VOC Instruction Video Tapes*

0:52:50 - 0:53:50   Process Discussion (before training rooms/lunch)
0:53:50 - 0:55:50   Process Discussion (after lunch)

(start of open PicTel session)

0:55:50 - 1:21:00 *Evaluation of ORD Activity Reports and Web Pages - Rollie Hemmett (R-2)*
- Multi-Region Review of the Utility of ORD Activity Reports and Web Pages

1:21:00 - 1:23:45   Process Discussion

1:23:45 - 1:39:30 *NCERQA Topical Search Compilations and other virtual communication - Myles Morse (ORD/NCERQA)*
- A Search Tool That Provides a Summary of Ongoing NCERQA Research by Science Topic

1:39:30 - 1:41:10   Process Discussion

1:41:10 - 2:19:00 *Searching ORD Databases by Science Topic (e.g., TMDLs) - Robert Shepanek (ORD/NCEA)*
- A Demonstration of a Cross-ORD Lab and Center Search Capability on the Environmental Information Management System (EIMS)

TAPE 3

0:00:00 - 0:03:15 *Searching ORD Databases by Science Topic (e.g., TMDLs) - Robert Shepanek (ORD/NCEA)* (Continued)
- A Demonstration of a Cross-ORD Lab and Center Search Capability on the Environmental Information Management System (EIMS)

0:03:12 - 0:05:30   Process Discussion

0:05:30 - 0:32:40 *InfoWorkSpace and MeetingWorks - John Miller (ORD/OSP)*
- A Demonstration of Two Examples of "Virtual Work Environments" via the Internet; InfoWorkSpace Will Be Used by On-site and Remote Participants

(end of open PicTel session)

0:32:40 - 0:33:50   Break

0:33:50 - 1:17:10 *Demonstration of NCERQA Targeted Search*

1:17:10 - 1:19:10   Process Discussion

TAPE 4

<u>**October 28**</u>

0:00:00 - 0:01:30   PlaceWare Set-up
0:01:30 - 0:11:00 *Check In - Jan Baxter (R-9)*

0:11:00 - 0:33:15 *ORD Waste Product List - Dick Garnas (ORD/OSP)*
- Multi-Region and Program Office Review of the Utility of an ORD Database of Waste Research Products of Regional Interest

0:33:15 - 0:34:00   Process Discussion

0:34:00 - 0:54:00 *Evaluation of ORD Community Science Products - Jan Baxter (R-9)*
- Region-Lead Review of an ORD Inventory of Community Science Products

0:54:00 - 1:05:39 *State of Science Reports using the example of the Bioavailability of Waste for Bioremediation - Robert Menzer (ORD/NCERQA)*
- An ORD Report to "Translate" the Results of NCERQA Grants on this Topic for Program Office and Regional Use

TAPE 5

0:00:47 - 0:07:50 *State of Science Reports using the example of the Bioavailability of Waste for Bioremediation - Robert Menzer (ORD/NCERQA)* (Continued)
  • An ORD Report to "Translate" the Results of NCERQA Grants on this Topic for Program Office and Regional Use

0:07:50 - 0:31:40 *Satellite Downlink on Advanced Monitoring Initiative Products - Peter Principe (ORD/NERL)*
  • An OAR-Sponsored Mechanism to Broadcast the Results of Science Projects to State and Local Organizations over Closed Circuit TV

0:31:40 - 0:34:55 Process Discussion

0:34:55 - 0:59:40 *Video on the Web Demonstration*
0:59:40 - 1:15:40 *Clip from Satellite Downlink*
1:16:40 - 1:36:15 *Demonstration of UST CD-ROM*

1:36:15 - 1:37:45 Process Discussion

TAPE 6

0:00:00 - 0:02:30 Process Discussion

0:02:30 - 0:26:35 *Video Presentations on the Web - Mark Hemry (R-9)*
  • A Demonstration of the Use of Real Networks Software to Give Streaming Media Presentations to PCs

0:26:35 - 0:51:35 *Instructional CD-ROM on Natural Attenuation - Dan Murray and José Perez (ORD/NRMRL)*
  • Multi-Regional and Program Office Review of the Utility of CD-Rom as a Training Tool for Science and Engineering Topics of Interest to the Regions

0:51:35 - 0:52:10 Process Discussion

0:52:10 - 1:23:30 *Internet Training Course on Groundwater Contamination - Jim Weaver (ORD/NERL)*
  • Multi-Regional Review of the Utility of the Internet as a Distance Learning Mechanism to Train Scientists on Science Topics

1:23:30 - 1:24:24   Process Discussion (before training rooms)

1:24:24 - 2:21:05 Info Fair Summary Discussion

INFO FAIR PROJECT TEAMS

October 19, 1999

ASTHMA WORKSHOP REVIEW

ORD Lead: David Klauder (OSP)   Regional Lead: Sheila Batka (R5)

TEAM MEMBERS: Jean Circiello (R9), Barbara Sparks (R9), Mary Beth Smuts (R1), Hillel Koren (NHERL), Sue McMaster (NHERL), Bruce Henschel (NRMRL)

ASTHMA WEB PAGE

ORD Lead: Lisa Ryan (OSP)   Regional Lead: Jean Circiello (R9)

INTERACTIVE LISTSERVERS ON SCIENCE TOPICS

ORD Lead: Regional Lead: Jean Circiello (R9)

TEAM MEMBERS: Gerald Hiatt (R9), Henry Lee (ORD/R9), Winona Victery (R9)

VOLATILE ORGANIC COMPOUND (VOC) INSTRUCTION TAPE

ORD Lead: Scott Hedges (NRMRL)   Regional Lead:

TEAM MEMBERS: Videotape Reviewers - Felicia Barnett (OSP, R4), Steve Rosenthal (R5), Mike Gill (OSP, R9); EPA Speakers at Seminar - Carlos Nunez (ORD, NRMRL), Teresa Harten (ORD, NRMRL), Subhas Sikdar (ORD, NRMRL), Leland Vane (ORD, NRMRL), Heriberto Cabezas (ORD, NRMRL), Charles Darvin (ORD, NRMRL), Dan Mussatti (OAQPS)

EVALUATION OF ORD ACTIVITY REPORTS AND WEB PAGES

ORD Lead: Virginia Houk (NHERL),   Regional Lead: Roland Hemmett (R2)
Ann Brown (NHERL), Jewel Morris (NERL),
Joe Corbett (NCEA), Dan Murray (NRMRL),
Myles Morse (NCERQA)

TEAM MEMBERS: Jan Baxter (R9), Bill Cosgrove (R4), Don Porteous (R1)

NCERQA TOPICAL SEARCH COMPILATIONS AND OTHER VIRTUAL COMMUNICATIONS

ORD Lead: Myles Morse (NCERQA)   Regional Lead:

SEARCHING ORD DATABASES BY SCIENCE TOPIC (E.G., TMDLs)

ORD Lead: Robert Shepanek (NCEA) Regional Lead: National Regional Science Council

TEAM MEMBERS: Rick Linthurst (NERL), Gary Collins (NERL), Susan Cormier (NERL),
Robert Carousel (NERL), Kate Smith (NERL), Ann Pitchford (NERL), Rich Koustas (NRMRL),
Russel Kries (NHERL), Mike Waters (NHERL), Cynthia Nolt (NCERQA), Linda Kirkland
(NCERQA), Jeff Frithsen (NCEA), Cheryl Itkin (NCEA)

INFOWORKSPACE AND MEETINGWORKS

ORD Lead: John Miller (OSP)

TEAM MEMBERS: ORD Regional Scientists

ORD WASTE RCT PRODUCT LIST

ORD Lead: Dick Garnas   Regional Lead:

TEAM MEMBERS: Michael Gill (OSP, R9), Dick Willey (R1), Paul Zielinski (OSP)

EVALUATION OF ORD COMMUNITY SCIENCE PRODUCTS

ORD Lead: David Klauder   Regional Lead: Jan Baxter (R9)

TEAM MEMBERS: ORD Community Science Team

STATE-OF-SCIENCE REPORT ON THE BIOAVAILABILITY OF WASTE FOR BIOREMEDIATION

ORD Lead: Robert Menzer (NCERQA)   Regional Lead: Dennis McChesney (R2)

TEAM MEMBERS: Ned Black (R9), Harbhjan Singh (R4)

SATELLITE DOWNLINK ON ADVANCED MONITORING INITIATIVE PRODUCTS

ORD Lead: Peter Principe (NERL)   Regional Lead:

VIDEO PRESENTATIONS ON THE WEB

ORD Lead: Regional Lead: Mark Hemry

TEAM MEMBERS: Dave Henderson (R9), Tala Henry (NHEERL), Rod Booth (NHEERL), Warren Beer (R9), Cheryl Henley (R9), Mark Greninger (R9)

INSTRUCTIONAL CD-ROM ON NATURAL ATTENUATION

ORD Lead: Joan Colson (NRML)   Regional Lead: Matt Small (R9)

TEAM MEMBERS: Gilberto Alvarez (R5), Jon Josephs (R2), Wendy Melgin (R9), Hillary Hecht (R9), Jose Perez (NRML)

INTERNET TRAINING COURSE ON GROUNDWATER CONTAMINATION

ORD Lead: Jim Weaver   Regional Lead: Matt Small (R9)

TEAM MEMBERS: Susan Colarullo (NERL), Dermont Bouchard (NERL), John Wilson (NRMRL), Ned Black (R9), Marcia Bailey (R10), Helen Dawson (R8), Dave Wilson (R5)